Bridging a supposedly unbridgeable gap: elaborating scientific knowledge from and for practice

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SERIE RECHERCHE

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Abstract

This article aims at advancing the still on-going conversations about the so-called research/practice gap. Some academics argue that it is not possible to develop knowledge that is both academically valuable and helpful for practice, while others hold the opposite view, justifying it on the basis of works published in top tier journals. The paper argues that the main reason scholars hold such contradictory views on this topic central to management science is the lack of explicitness of a number of founding assumptions which underlie their discourses, in particular the lack of explicitness of the epistemological framework in which the parties' arguments are anchored.

The paper presents methodological guidelines for elaborating *scientific* knowledge both *from* and *for* practice, and illustrates how to use these guidelines on examples from a published longitudinal research project. In order to avoid the lack of explicitness pitfall, the paper specifies scientific and epistemological frameworks in which the knowledge elaborated in this methodological approach, when properly justified, can be considered as legitimate scientific knowledge.

Keywords: collaborative research, constructivist epistemological paradigm, sciences of the artificial, organizational design science, rigor, actionability

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The research – practice gap in management science has regularly been both acknowledged (e.g. Bennis and O'Toole, 2005; Porter and McKibbin, 1988) and denounced over the last twenty years (Beyer, 1982; Lawler et al., 1985; Van de Ven, 2007). Although this gap has already been addressed by several special issues of leading academic journals[1], acceptable ways of addressing it have not been developed. A number of research methods are specifically aimed to developing academic knowledge relevant for practice. These include action-research (Argyris, 1993; Eikeland, 2006), insider/outsider collaborative research (Bartunek and Louis, 1996; Balogun et al., 2003), engaged research (Van de Ven and Johnson, 2006; Van de Ven, 2007), interactive research (Nielsen et al., 2006; Avenier, 2007, 2009), relational scholarship of integration between researchers and practitioners (Bartunek, 2007), design science methods (Pawson and Tilley, 1997; Van Aken, 2004; *JABS* 2007; Denyer et al., 2008) and evidence-based management (Rousseau, 2006). Yet in 2009, there are still arguments about proper relationships between research and practice. For example, Kieser and Leiner (2009) argue that there is a gap between knowledge considered scientific and knowledge considered relevant for practice, and that this unfortunately labeled "rigor – relevance gap" (Gulati, 2007) is unbridgeable, while Hodgkinson and Rousseau (2009) disagree.

In this paper we will argue that the above disagreements result at least in part from a lack of explicitness about the epistemological and scientific frameworks in which the debates take place. In the terms in which they have been framed, the disagreements about the possibilities for academic research to inform practice may not be resolvable. But from other frameworks, they may well be resolvable. In an attempt to move beyond the current debates, we will specify an epistemological and scientific framework that fosters the elaboration of scientific knowledge relevant for practice.

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[1] See for instance, *Academy of Management Journal* (Rynes et al., 2001), *British Journal of Management* (Hodgkinson, 2001), and *Academy of Management Executive* (Bailey, 2002).

The paper is organized in three parts. The first one aims at understanding the main reasons which lead to the coexistence of such contradictory perspectives on the existence and bridgeability of a gap between contributions recognized as scientifically valid and contributions recognized as practically relevant. The second part briefly presents an epistemological and scientific framework that makes manifest that two perspectives are not necessarily irreconcilable. Based on this epistemological framework, the third part discusses conditions for fostering the elaboration of scientific knowledge relevant for practice. This discussion is systematically illustrated on examples drawn from an on-going research project.

1. Why the Contradictory Perspectives on the So-Called Rigor – Relevance Gap?

We will address two types of reasons for the coexistence of such contradictory perspectives regarding the possibility of reconciling the practical and the epistemic values of management research. We shall examine each in turn.

1.1 Lack of Explicit Specification of the Underlying Epistemological and Scientific Frameworks

Kieser and Leiner (2009), along with other scholars who defend the view of unbridgeability, consider that organization science works on a true/false code. For these authors, science is implicitly, if not explicitly, always grounded in epistemologies which work on a true/false code, i.e. mainly in positivist and realist epistemologies. Indeed, even though in scientific realism the truth/false dichotomy is replaced by "truthlikeness" and in critical realism theories can be true or false, both believe that rigorous scientific research can move researchers progressively towards a true account of phenomena (Kwan and Tsang, 2001). Hence, Kieser and Leiner's view does not take into account the existence of certain other solidly-founded epistemological paradigms that do not work on a true/false code and in which

science can be fruitfully grounded. One of these is the *teleological constructivist epistemological paradigm* (Le Moigne, 1995, 2001), which we will discuss in more detail below. This epistemological paradigm, which is based on radical constructivism (Glasersfeld, 2001, 2005; Riegler, 2001), considers that an inquirer cannot rationally know such a thing as an independent, objective world that stands apart from his/her experience of it. Hence, in this epistemological paradigm, the true/false criterion becomes meaningless. As in pragmatism, it is replaced by a criterion of functional fit: to know is to possess ways and means of acting and thinking that allow one to progress towards one's goals (Glasersfeld, 2001).

In addition, Kieser and Leiner (2009), as do many scholars, implicitly consider that there exists only one archetype of science, that of the sciences of nature, and they use the term "scientific" implicitly in the sense it has in the sciences of nature. They ignore the archetype of the sciences of the artificial (Simon, 1996; Mohrman, 2007; Avenier, In Press/a) which has recently given rise to the highly promising, nascent conceptualization of organizational design science (Mohrman 2007; Jelinek et al., 2008; Avenier, In Press/a).

On the other side, with rare exceptions (Van de Ven and Johnson, 2006; Van de Ven, 2007; Avenier 2007, 2009), methodological discussions usually take place without any epistemological consideration. This is a major source of misunderstanding in the rigor – relevance debate, because terms like "rigor" have different meanings in different epistemological frameworks (Avenier, In Press/a), and also because justification processes and criteria for evaluating research projects depend on the epistemological frameworks of projects (Guba and Lincoln, 1989; Schwarz-Shea, 2006). For instance, in the positivist and critical realist frameworks (Tsang and Kwan, 1999), knowledge generation and knowledge justification are considered as distinct processes which take place sequentially: the knowledge generated during a so-called exploratory process needs to be validated thereafter by testing hypotheses or replicating the study over a large sample. In the teleological constructivist

epistemological paradigm, knowledge elaboration and justification are two simultaneous processes which cannot be dissociated. Hypothesis testing and research replication across large samples are not considered as particularly valuable means of justification (Guba and Lincoln, 1989, 1998; Le Moigne, 2001).

Since certain notions – like that of rigor – take on different meanings in different epistemological and scientific frameworks, and since different views of science work on different codes – true/false code in positivist views of science, functional fit in certain constructivist views of science – the implicitness of the underlying epistemological and scientific frameworks in the so-called rigor – relevance debate impedes constructive dialog between the different parties. To avoid perpetuating this confusion, we will explicitly specify the epistemological framework of our contribution.

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1.2 One-Sided Focus in the Definition of the Research Question

The methods for developing knowledge relevant for practice such as those evoked in our introduction (action research, insider/outsider research, engaged and interactive research, design science, evidence based management) typically rely on practitioners' involvement at various moments of the research process. For brevity's sake, we will refer to them as collaborative methods.

In collaborative research projects, defining the research question is crucial, as the question of interest to participants (how to act effectively in a particular setting) is likely to differ from questions that interest a large part of the scholarly community (generalizable, abstract knowledge) (Evered and Louis, 1981). There is a danger that questions that guide the research project may fall too far into one side or the other.

Sometimes the research question is defined almost solely on the basis of a practical issue that practitioners consider important. This is particularly likely to occur in action research projects (Bartunek, 1983). For example, Trullen and Bartunek (2007) underscore the richness of information collected in collaborative research in the area of Organizational Development. At the same time they point out the difficulties that researchers have in theorizing from this particularly rich empirical material. In our experience, if researchers do not specify early in the research project a scholarly question and potential theoretical contribution of the research project, it is difficult for them to do so at a later time.

Sometimes researchers might define a research question that is primarily of interest to the scholarly community. In this case they may encourage the collaboration of practitioners in certain specific research activities, such as data collection. Amabile's work (Amabile et al., 2001; Amabile et al., 2005) provides a good example. In cases like this learning from practitioners may lead researchers to refine, adapt and even modify the initially specified research question.

It is possible to develop research questions that are complementary (e.g. Bartunek et al., 1992; Bartunek et al., 1999; Bartunek et al., 2007). However, this is more difficult to accomplish.

In sum, the first approach to defining the research question can run into a danger of fostering the development of knowledge related to a practical issue from which it may be difficult to extract a theoretical contribution. The second approach may, if authors are not careful, foster the development of a theoretical contribution which is not necessarily related to practitioners' concerns. To respond to this problem, another way for defining the research question will be discussed in the third part of the paper. Before that, however, the second part presents the scientific and epistemological framework that undergirds the way of defining research projects that we will present.

2. A Constructivist View of Management Science Anchored in the Sciences of the Artificial's Scientific Framework

As argued in the first part, a methodological reflection is always grounded in a certain conception of what is knowledge and what is knowable in the empirical world in which humans live, i.e. in a certain epistemology. When no particular epistemological framework is mentioned the default framework is likely to be positivism (Van de Ven, 2007). However, other solidly-argued epistemological paradigms also constitute legitimate alternative epistemological frameworks. For instance, Van de Ven and Jonhson (2006) and Van de Ven (2007) subscribe to the critical realist framework as conceptualized by Campbell (1988). Avenier (2007, 2009) subscribes to the teleological constructivist epistemological paradigm (Glasersfeld, 2001, 2005; Le Moigne, 1995, 2001). It is in this latter epistemological framework that this paper's contribution is anchored.

Similarly a methodological reflection is inevitably grounded in a certain conception of science. When no particular scientific framework is mentioned the default framework is that of the sciences of nature. However, there is another solidly-argued archetype of science: the archetype of the sciences of the artificial (Simon, 1969, 1981, 1996). This archetype has also given rise to a model of organizational design science (Mohrman, 2007; Jelinek et al., 2008, Avenier, In Press/a). It is in the wide scientific framework of the sciences of the artificial that this paper's contribution is anchored. Since both the teleological constructivist epistemological paradigm and the archetype of the sciences of the artificial are not widely diffused yet, they will be briefly presented in the following sections.

2.1 Guiding Principles for the Elaboration of Knowledge in the Teleological Constructivist Epistemological Paradigm

After recalling the main founding assumptions of the teleological constructivist epistemological paradigm, we will briefly discuss the knowledge justification process in this epistemological paradigm.

2.1.1 Teleological Constructivist Epistemological Paradigm's Main Founding Assumptions

Briefly summarized (Glasersfeld, 2001; Le Moigne, 1995, 2001), the teleological constructivist epistemological paradigm postulates phenomenology's basic assumption, namely that, while human experience is knowable, humans cannot rationally know such a thing as an independent, objective world that stands apart from their experience of it. In particular, even though the inquirer and the inquired into can be distinguished, the inquirer cannot be separated from the inquired-into in his/her knowledge of the inquirer into. In this paradigm, the existence of an objective world populated by mind-independent entities is neither denied nor asserted. The elaboration of knowledge is portrayed as a process of intentional elaboration of symbolic constructions, called representations, based on experience, not as a collection of new objective facts. In this paradigm, the notion of "truth" is meaningless because of the unfeasibility of determining if representations are similar, or not similar, to the world that has induced the experience. Hence, "to know" is defined not as to possess true representations of reality, but as to possess ways and means for dealing with the world of experience. Hence, the role of knowledge construction shifts from constructing (supposedly) true representations to *functionally fitted representations*. The knowledge elaborated has the status of *plausible hypothesis.* It depends on the context and the goal of the knowledge process. It may induce modifications in the prior knowledge that served to build it.

2.1.2 Knowledge Legitimization in the Teleological Constructivist Epistemological Paradigm

In the teleological constructivist epistemological paradigm, knowledge legitimization does not give primacy to hypothesis testing (Le Moigne, 1995). Epistemic legitimization, which concerns the justification of the epistemic value of a particular piece of knowledge, relies on epistemic and empirical work. Epistemic work is deliberate, reflective work, which consists of digging into both the implicit assumptions made and the deep meaning of the notions that are used; tracking what seems self-evident; questioning the mutual relevance and consistency of the countless decisions the researcher makes along the entire research process, from the specification of the research design to the communication of the results. We shall focus here on two of the three basic principles that have been advocated for structuring epistemic and empirical work (Le Moigne 1995, 2001, 2002), that are particularly relevant for this paper discussion, namely rigor and explicitness. Rigor is taken in the sense of Leornardo da Vinci's favored motto, *ostinato rigore*, which means an obstinate quest for becoming still more rigorous in the way researchers collect information, read and reread academic literature and field documents, and draw inferences. Hence, this notion of rigor is richer than in the conventional view in organization science, where it refers primarily to combating possible threats to reliability and internal and external validity—as these notions are defined in positivist and realist epistemologies.

The principle of explicitness extends the usual scope of audit trails (Balogun et al., 2003; Schwartz-Shea, 2006) which record, as precisely as possible, the various steps of the research, to rendering explicit the founding assumptions of the epistemological paradigm in which the research has been carried out, as well as the possible ontological working assumptions made. A detailed research report based on an extended audit trail aims at providing sufficient grounding for the knowledge claims that readers can form autonomous assessments of the knowledge generation process and check whether they agree with the knowledge claims.

Besides providing a way to comply with the principle of explicitness, a detailed research report offers means to show signs of the rigor with which a particular research project has been conducted. In the teleological constructivist epistemological paradigm, knowledge claims, when accompanied with such a report, are not considered as exploratory—as would remain the case in the positivist and critical realist frameworks as long these claims have not be subject to wide hypothesis testing and replication on large samples.

2.2. Knowledge Elaboration in the Sciences of the Artificial's Scientific Framework

The second issue we address is: why subscribe to the view of management science as a science of the artificial rather than to the classical view of management science, which is, implicitly but not explicitly, based on the model of sciences of nature?

The fundamental reason stems from the fact that organizations are generally considered as artifacts initially founded by some individuals for some purpose, in a particular context that imposes a number of constraints on their functioning, rather than as objects created by Nature—like the planets in the universe. Simon (1969) underscored that artifacts have two properties which render them inappropriate for being studied within the model of the sciences of nature: their being shaped by human intentions and their dependence on their environment. In Simon's conception, the sciences of the artificial permit integration of knowledge stemming from the sciences of nature, whenever this appears relevant. For instance, his study of organizational decision-making explicitly took into account human bounded cognitive capabilities (Simon, 1957).

We shall now argue that in the constructivist view of management science as a science of the artificial, there is no a priori rigor – relevance gap. To this end, we shall first note that when management science is viewed as a science of the artificial, the goal of research is to develop knowledge that advances understanding of the functioning and the evolution of

organizational artifacts, such as managerial processes, procedures, systems and tools. Such understanding is likely to be relevant for the design of certain managerial artifacts having certain particular desired properties – for instance knowledge about the effects of various sorts of reward systems may help design a reward system which fosters not only individual performance but also solidarity among team members.

Then, as said earlier, in a constructivist view of science, knowledge, in order to be legitimized, needs to be elaborated with *ostinato rigore.* Hence in the constructivist view of management science as a science of the artificial adopted in this paper, knowledge is supposed to be developed with rigor and is likely to be relevant for organizational design: there is no a priori rigor – relevance gap.

3. Conditions Fostering the Elaboration of Scientific Knowledge Relevant for Practice

Even if knowledge is elaborated with the intention of being relevant for certain management concerns, this does not guarantee that there will be practitioners who actually find this knowledge relevant those management concerns. In this section we discuss conditions that foster the elaboration of scientific knowledge relevant for practice in collaborative research projects carried out in this constructivist view of management science anchored within the sciences of the artificial's framework. Ways for putting into practice these conditions are illustrated on examples drawn from research projects in which the first author has been engaged for several years. These examples will be placed in boxes along the text.

3.1 Scholars' Intention of Actionability and Practitioners' Assessment of Actionability

According to the founding assumptions of the teleological constructivist epistemological paradigm recalled in §2.1, the goal of the research project influences the knowledge generated

during it. Hence, an explicit intention of knowledge's actionability[2] with respect to a particular practical concern can foster the capability of the knowledge actually elaborated of being readily put into action by practitioners concerned by this problem. Still, academic researchers cannot unilaterally proclaim the actionability of the knowledge they generate[3]. Indeed, there might be a discrepancy between how scholars and practitioners define and assess the relevance of theory for practice (Jarzabkowski and Wilson, 2006). In addition, Tenkasi et al. (2007) observed that knowledge activation in a particular setting can be facilitated, but not solely accomplished, by academics, even those acquainted with the setting, because it demands local sense-making and self-design.

As a consequence of the arguments above, in collaborative research, the two conditions that participating practitioners be involved in the assessment of knowledge's actionabilty and that the knowledge be elaborated with an intention of actionability are crucial. Let us examine how these conditions can be implemented in practice.

3.1.1 Involvement of Practitioners in the Definition of the Research Question

The first way of involving practitioners in the assessment of knowledge actionability is to associate them in the definition of the research question. This can be achieved by designing the research question's generation as a three-step process whose steps are carried out iteratively until convergence is reached. The first step consists of jointly specifying with practitioners a vexing practical concern which is also of interest for the academic researcher (see Box 1 for an example). If this problem is initially expressed in a highly contextualized

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[2] Argyris (1993) defined actionable knowledge as knowledge ready to be put into action. By extension knowledge actionability (Jarzabkowski and Wilson, 2006) is the property of certain knowledge of being ready to be put into action.

[3] Our view that scholars cannot unilaterally proclaim the actionability of the knowledge they generate leads us to focus on the intention of knowledge's actionability in the knowledge generation process rather than on actionable knowledge. Indeed, elaborating knowledge with an intention of actionability does not presume that the knowledge actually generated will indeed be considered as actionable by practitioners.

manner, the academic researcher needs to examine with the practitioners how it can be formulated in more generic terms.

The practical problem which served as a starting point for the project used to illustrate this paper was identified during a research project carried out by the first author with consultants from ALPHA[4] in the mid '90s. An important concern for these consultants was their perceived lack of guidelines for helping their clients design management systems that would help their companies better cope with business and management complexity. For these consultants coping with complexity meant, for instance, coping with unexpected evolutions of their environment that had become more frequent and capable of stemming from more diverse sources. It also meant coping with ago-antagonist phenomena[5] (Bernard-Weil, 1988) that had become ubiquitous and that their clients felt ill-equipped for dealing with.

Box 1: The initial practical problem of the research project used for illustration purposes

Once the practical concern has been specified, the second step consists of conducting a thorough survey of both the academic and practitioner literature relevant to it (see Box 2 for an example). This is, in essence, a use of evidence-based management (Rousseau, 2006; Rousseau et al., 2008; Tranfield et al., 2003), one that takes seriously the meaningfulness of academic evidence for addressing practitioner concerns[6]. It may be aimed towards giving practitioners instrumental knowledge for addressing their concerns directly or towards giving

[4] Fictitious name used for the sake of submission's anonymity.

[5] An ago-antagonist phenomenon is a phenomenon involving two opposite and complementary poles/facets (Bernard-Weil, 1988), as, for instance, empowerment and regulation in team management. At first glance, these two poles seem to exclude one another but in practice they turn out to be indissociable like the two sides of a coin.

[6] The evidence-based collaborative, http://www.tepper.cmu.edu/ebm, is in the process of developing compendia of evidence that will make the process of searching for evidence easier over time. The *International Journal of Management Reviews* is already publishing systematic reviews in management.

conceptual knowledge that can help them think in new, broader, and creative ways about these issues (Beyer, 1997).

This survey is usually done by the academic researcher. Indeed, literature surveys are a basic activity/task of academic research. Nonetheless, nothing prevents practitioners who wish to participate in this activity to actually do it, as long as they have access to the necessary resources (e.g. ABI Informs, Business Source Complete). As a matter of fact, certain ALPHA consultants were interested in studying certain contributions on complexity such as Le Moigne (1990), but they were not interested in doing the overall literature survey. In the various collaborative research projects we carried out over the years, practitioners have not shown high interest in doing by themselves the type of thorough/systematic literature survey, which academic research requires. They have relied on academics for this task.

The literature survey had two main thrusts, general literature on management and strategy (Hofer and Schendel, 1978; Johnson and Scholes, 1993), and literature on complexity. This led the author to identify notions and principles such as the requisite variety principle (Ashby, 1960), systems analysis and systemic modeling (Churchman, 1984; Le Moigne, 1990; Senge, 1990), and principles of complex thinking (Morin, 1977, 1980; Morin et Le Moigne, 1999). As an example of principles of complex thinking, the "dialogical principle" stipulates that for coping with an ago-antagonist phenomenon, it is crucial to continually maintain in tension the two opposite and complementary poles of this phenomenon rather than concentrate on one at the expense of the other.

Box 2: Focus of the initial literature survey in the illustrative example

The third step consists of examining whether the reviewed literature offers knowledge which enlightens the practical problem sufficiently for helping practitioners to design a

satisfactory solution to the practical concern under consideration. For the reasons stated earlier, it is crucial that practitioners are involved in determining this. If this work reveals that certain published knowledge provides sufficient insight on the practical problem considered, the research project's aim can become putting the corresponding knowledge to the test of actual experience in the particular setting considered. If, as was the case in the illustrative research project (see Box 3), none of the published knowledge seems to provide sufficient insight on the practical problem, this joint confrontation of the insights offered by the literature on the practical problem may reveal a *theoretical gap*, i.e. a failure of the literature to illuminate satisfactorily the practical problem considered. In this case, the research project's aim may be to contribute to filling this gap, which has been jointly identified by academics and practitioners. Even in cases where there is no clear literature or theoretical gap, at the very least it is possible for academics to extend the literature in a meaningful way through studies such as those we are discussing here. For example, an insider/outsider study by Bartunek et al. (1999) elaborated how sensegiving, which had previously been discussed by Gioia and Chittipeddi (1991), could take on different characteristics depending on the types of issues about which a leader is giving sense.

When the author presented the principles and notions of complex thinking identified in the literature survey to the consultants, they felt that the principles were too abstract to constitute satisfactory guiding principles for designing and implementing with their clients management processes adapted to cope with business complexity. In other words, the work done with these consultants suggested a theoretical gap: a lack of mid-range theories (Merton, 1957) relative to the design of complex management processes aimed at helping organizations cope with their internal and external environment's complexity.

Box 3: Theoretical gap that the illustrative research project aims to contribute filling

Once the theoretical gap has been identified, practitioners other than those having participated in its identification may join in the research project (cf. Amabile et al., 2001). The research project can even be continued in another organization as exemplified in Box 4.

The research project based on the theoretical gap identified with ALPHA's consultants has been carried out with practitioners of another company, called BETA for anonymity's sake. The first author met BETA's CEO at the end of the '90s, during a conference for top managers on the theme "Management and Complexity". She was presenting a view of strategizing adapted to complex environments. BETA's CEO was describing how she had designed and recently implemented a new management system for her company in reference to complex thinking principles. After listening to each other's presentations, they perceived a mutual interest in the other's experiences and views. Very rapidly this CEO offered the author the possibility to study the organization and the managerial processes she had recently implemented as well as experimentation with innovative managerial processes she was regularly carrying out in her company. Thus the research project was launched at BETA.

Box 4: How the illustrative research project ended being carried out at BETA rather than at ALPHA

3.1.2 Knowledge Dissemination to Practitioners

The dissemination of research findings in academic communities is a well-known requirement of scientific research. Peer reviewing is the most typical means through which the epistemic value of the research findings is acknowledged. Such recognition is facilitated when the research's theoretical gap together with the precise contribution of the project in filling that gap is explicitly presented and legitimized (Locke and Golden-Biddle, 1997; Golden-Biddle and Locke, 2007). In academic communications, the traditional "managerial implications" developed at the end of academic papers are often addressed much more to the academic community—particularly reviewers and editors of academic journals—than to

practitioners, at least in terms of their actionability (Jarzabkowski and Giuletti, 2007; Kieser and Leiner, 2009; Bartunek and Rynes, In Press).

With regard to an intention of actionability, since knowledge activation in a particular setting requires local sense-making and self-design (Tenkasi et al., 2007), relevance and actionability are assessed by practitioners concerned by the practical problem this knowledge is supposed to illuminate satisfactorily, rather than by academics. Hence, the importance of attempting to disseminate this knowledge directly to practitioners, which has already been underscored by various scholars who promote collaborative research (Bartunek and Louis, 1996; Van de Ven and Johnson, 2006; Bartunek, 2007; Avenier, 2007). This can be achieved for instance via academics' participation to inter-organizational conferences for Executives such as the one where the author first met the BETA CEO in 1998 (see Box 4) or other joint academic-practitioner forums (Bartunek, 2007). Such communication offers the further advantage of enabling academics to get in touch with practitioners open to communication with management scholars—who themselves bestow interest to management practical problems. Practitioner communication does not have to comply with academic codes which render articles published in academic journals unreadable (Plummer, 2001). Instead, this communication has to be designed so as to facilitate intelligibility. Bartunek and Rynes (In Press) underscore the importance of examples in implications for practice sections of academic journal articles. Leung and Bartunek (2009) suggest other means of communication that may be hospitable to practitioners, including teaching cases, websites (such as Ted.Com) and simulations that provide much fuller communication than do academic writings. When knowledge elaborated in a research project carried out in the view of management science adopted in this paper can both be published in academic journal and disseminated in practitioners' meetings and/or the kind of practitioner media described above, the research project can be considered to have achieved both objectives of relevance and academic value.

Still to be seen of course, and an issue for academic research in general, is how helpful the research findings are to actually improving practice.

3.2 Building Knowledge from Practice with an Intention of Actionability

We view the process of building knowledge from practice as an iterative process. The first phase consists of developing local substantive knowledge in Geertz' (1983) sense (see Box 5 below for an example) by having academics articulate practitioners' experience and knowledge relative to the initial problem on the basis of information gathered through deep interviews, observations and internal documents.

The second phase aims at generalizing the local knowledge into scholarly knowledge. In the teleological constructivist epistemological paradigm, generalization of local knowledge follows a path similar to that suggested by Glaser and Strauss (1967) for going from substantive to so-called "formal grounded theory". Such generalization aims at extending upward the conceptual generality of local knowledge. This upward extension is accomplished through a process of conceptualization and de-contextualization of local knowledge *via* the systematic study of multiple comparison groups and on the basis of a heteroclite substratum composed particularly of knowledge published in academic and practitioner literature, local knowledge and substantive theories associated with different comparison groups (Glaser and Strauss 1967; Charmaz 2003), as well as the researcher's general knowledge.

Beginning in 1996, in order to cope with BETA's environmental complexity and unpredictability, its CEO has instituted a tradition of annual strategic meetings. In 2003, when the author started studying how these meetings work, she realized that they permit implementing an interesting capability (Mintzberg and Waters, 1982), namely maintaining deliberate strategic orientations and emergent innovative ideas for action in dialogical tension[7]. So, she worked with BETA's members in order to develop the following local knowledge. This knowledge is associated with this interesting property of BETA's strategic meetings and based on the BETA members' knowledge and experience.

During the strategic meetings, BETA's top managers recall BETA's strategy and fundamentals (i.e. BETA's customer intimacy-based strategy, good practices to be followed in the various departments…) so that BETA's strategy and fundamentals can become known throughout BETA and infuse the staff's daily activities. They also present the specific strategic orientations they wish the staff to embrace during the coming year. They do so without specifying the ways to enact these orientations, in order to stimulate the emergence of innovative ideas congruent with these specific orientations. Afterwards, those ideas that top managers judge immediately productive are readily implemented, and other emerging ideas are worked out during the year with BETA's staff for becoming the specific strategic orientations which will be announced during the following strategic meeting. This functioning permits to continually combine deliberate strategic orientations and emergent ideas for action.

Box 5: Example of local knowledge developed in the illustrative research project on the basis of the experience of the firm's members.

This generalized scholarly knowledge can take the form of a set of general propositions (see Box 6 for an example), design methods (Mohrman, 2007), as well as "knowledge artifacts" (Jarzabkowski and Wilson, 2006), such as frameworks, generic models, and tools, as, for instance, Porter's five forces and generic strategy models. As one fairly dramatic example of the creation of generalized knowledge from local knowledge, appreciative inquiry (cf. http://appreciativeinquiry.case.edu/), considered one of the most popular large group

[7] A dialogical tension between two opposite poles forms a complex unity in which the different poles do not dissolve (Morin and Le Moigne, 1999).

intervention methods in the world, developed initially out of David Cooperrider's dissertation and the theorizing he did in it (Cooperrider, 1986).

BETA's managerial processes have been designed to continually maintain a dialogical tension between the opposite poles of a number of ago-antagonist phenomena[8] that strategic management involves. For instance, the strategic meetings have been designed for maintaining a dialogical tension between deliberate strategic orientations and emergent innovative ideas for action; the procedure used for adapting global procedures to local specificities of BETA's various sites in Europe; the way BETA's managers are supposed to handle the dialogical tensions between their hierarchical responsibilities in their team and their positions as members of an empowered learning team; the procedure for handling the dialogical relation between decentralized operational activity and centralized decisions and actions.

A careful study of the various dialogically-designed managerial processes (which constituted the various comparison groups for generalizing the (local) knowledge concerning each of these managerial processes) led to the following generalized propositions:

- Whenever managerial systems are designed so as to continually maintain a dialogical tension between the ago-antagonist phenomena they involve, this limits the risks that managers focus their attention on only one pole at the expense of the other one.
- Managerial systems that facilitate the handling and maintaining of such dialogical tensions are not easy to design and implement; nor are they comfortable to operate. On the contrary, it is easy to drift towards the relative easiness of designing, implementing or operating managerial processes attending to only one of the two opposite poles.
- For top managers who are convinced of the relevance of implementing this kind of process in their firm, it is wise to set up devices aimed at continually reminding themselves and their staff, to continually operate in a dialogical mode the processes which have been designed to function that way.

Box 6: Example of generalization of local knowledge developed in the illustrative research project.

[8] As already stated in footnote 5, an ago-antagonist phenomenon is a phenomenon involving two opposite and complementary poles/facets (Bernard-Weil, 1988), as, for instance, empowerment and regulation in team management. At first glance, these two poles seem to exclude one another but in practice they turn out to be as indissociable as the two sides of a coin.

The fact that the scholarly knowledge that is developed on the basis of practitioners' experience aims towards filling a precisely specified theoretical gap facilitates the academic recognition of that knowledge. Indeed, in this case, academics can readily assess the academic value of the knowledge elaborated relative to the specified theoretical gap. For instance, papers discussing certain results of the research project used throughout the paper for illustration purposes have to this point been published as a book chapter (2007) and presented at an international conference (2008).[9]

BETA's CEO considers that the generalized knowledge developed from the collaborative research projects carried out in her company constitutes a useful support for reflecting on her company's management system from the perspective of continually improving it. She also considers that because this knowledge illuminates her company's functioning from viewpoints which are sometimes unfamiliar to her, this knowledge helps her become aware of malfunctioning that she had not perceived before, and this sometimes fosters changes in her practices or in BETA's systems (2009)[10]. Her personal involvement in several successive research projects since 1998 demonstrates her interest in participating in the research processes themselves as much as in the scholarly knowledge elaborated in these projects. She believes that this knowledge can also interest other companies' top managers who feel that their companies operate in a complex environment and that only complexity can help cope with complexity (Ashby, 1960; Weick, 1979).

Box 7: Assessment of the relevance of the knowledge generated in the illustrative research project

[9] The references are not communicated here for anonymity's sake. However, Albert's (2007) dissertation provides another illustration of this claim. The theoretical gap of her study concerned management practices aimed at fostering organizational commitment in family-owned large department stores. Indeed, the literature concerning management practices in family-owned businesses is not congruent with that concerning management practices in large department stores. By drawing upon the experience of managers of various stores of a large family-owned department store, Albert showed that under certain conditions (corresponding mainly to practices in family-owned business, which foster internal commitment), internal commitment can combine with external commitment (on which management practices in large department stores usually rely) to form a self-reinforcing positive feedback loop.

[10] Again, the reference is not communicated for anonymity's sake.

Furthermore, when scholarly knowledge is elaborated with the goal of contributing to filling a theoretical gap associated with a vexing practical problem, **as well as both** with an intention of actionability **and** by drawing upon practitioners' knowledge and experience relative to this practical problem, this fosters the elaborated knowledge's relevance and actionability as perceived by certain practitioners having participated in the research project (as exemplified in Box 7 above). This can also foster knowledge's relevance and actionability as perceived by practitioners of other organizations, who are also concerned by the practical problem under consideration.

4. Discussion

The above example illustrates with an actual research project the feasibility of combining practical relevance and epistemic value in the view of management science taken in this paper. It shows how the so-called rigor-relevance gap can be bridged. It also illustrates the value and relevance of the conditions we have discussed for guiding the design of research projects that have the objective of offering an academic contribution judged by management practitioners as providing relevant insights on some of their concerns. These conditions aim at insuring a practical and theoretical grounding of the research project at all levels: 1) the research project is guided by an intention of actionability as much as it aims at contributing to filling a theoretical gap; 2) the research question is grounded on a vexing practical problem that stimulates a thorough literature survey; 3) the scholarly knowledge elaborated is built by drawing upon practitioners' experience and knowledge, as much as upon the academic literature. This continual practical grounding, which is not made at the expense of academic concern, makes the knowledge elaborated quite different from what is sometimes presented as "managerial implications" in academic journals.

We address two issues below. The first concerns the extension of the roles practitioners play in collaborative research. Should academic researchers and practitioners carry out identical activities? Second, does an early specification of theoretical gap lead to a damaging confinement of the research project?

Collaborative Research Does Not Mean that Scholars and Practitioners Must Carry Out the Same Activities

In the approach we have described here, researchers and practitioners play different and complementary roles in the construction of the research question and ways to address it. Indeed, the literature survey is usually done by the researchers, while assessment of the relevance of theoretical knowledge for the practical problem at hand is done by practitioners in the light of the literature survey. In this section, we shall see that this is also the case during the elaboration of local and generalized knowledge.

In our experience, during the elaboration of local knowledge most of the involved practitioners[11] are co-researchers. Questions addressed by researchers to practitioners concerning their experiences and practices invite practitioners to step back and consider their practices from a different perspective. Such reflection on what they are doing and why was viewed by the BETA CEO as a very important aspect of her interactions with the first author; the CEO believed that this might foster changes in some of her practices or in BETA's systems. Such reflection has also been treated as particularly valuable by the practitioners who have collaborated with Bartunek in insider/outsider research projects (e.g. Bartunek, 2003).

[11] In this methodological framework, practitioners include not only managers but also non-managerial staff having experience about and/or concerned by the practical problem under study.

Local knowledge which is generated out of interactions between practitioners and academic researchers is typically a co-construction between them. However, practitioners and academics do not play exactly the same role in this co-construction. For instance, elements of local knowledge that are elaborated in face-to-face interaction between practitioners and researchers are more likely to be recorded by the researchers after the interaction, and not by the involved practitioners (although for a practitioner example of such recording see Bartunek et al., 2000). Another example lies in the difference between cognitive postures: researchers address questions to practitioners aimed at eliciting practitioners' experience and knowledge, whereas practitioners ask researchers questions regarding academic knowledge.

In our experience, during the generalization of local knowledge the respective roles of practitioners and researchers differ even more than during local knowledge construction. The work performed to develop scholarly knowledge by generalization of the local knowledge in relation with the existing literature corresponds more to the academic researchers' main professional skills and duties than to those of practitioners. During this process, the collaborative interactions between them can take different forms. For instance, researchers may go back to practitioners to clarify points that were not examined in a sufficiently precise manner, or not at all, during the elaboration of local knowledge. They may also have discussions relative to the various versions of the generalized knowledge being elaborated. These further interactions may make practitioners aware of certain malfunctioning in their practices and even offer insights on how to improve them. In this case these discussions enrich both parties (Avenier, In Press/b).

These differences of roles originate mainly from the differences in practitioners and researchers' competencies (Van de Ven and Johnson, 2006) and from the related goals, competence, experience and knowledge that accompany them. Indeed, an academic researcher's core competence is to teach and do academic research, while practitioners have

other core competencies in the practice unit under study; and it is precisely thanks to their different and complementary roles that their collaboration is likely to enrich both parties.

Early Specification of the Theoretical Gap Does Not Mean Confinement

The role of specifying a particular theoretical gap early in the research process is to emphasize the importance for academic scholars of never losing sight of one of the two objectives of such research projects. Indeed, interactive work with practitioners can easily hide the objective of elaboration of a scholarly contribution in relation with the starting practical problem.

Unlike research projects aimed at testing hypotheses or at replicating an earlier project on a larger sample carried out in positivist and realist views of management science, in the constructivist view of management science taken in this paper, an early specification of the research gap does not exclude the possibility of later reorientating the research project towards another research gap that emerged during the research process[12]. Besides, provided that researchers give a sufficiently detailed account of the epistemic and empirical work performed during the research project and that this account shows that the epistemic and empirical work was done with obstinate rigor, in the constructivist view of management science taken in this paper, the scholarly knowledge elaborated in research projects need not be further tested nor replicated in other research projects involving large samples to be considered valid. As a matter of fact, in the teleological constructivist epistemological paradigm knowledge elaboration and legitimization are two indissociable processes (Avenier,

[12] As noted above, the theoretical gap of the research project used for illustration purposes in this paper was identified in the course of another collaborative research project carried out in a company named ALPHA. It was not addressed in that project, but later on, in another research project carried out in another organization, BETA.

In Press/b), and knowledge legitimization rests on the explicitness of the account and the rigor with which the various steps of the research process were carried out.

It is noteworthy that, if this way of formulating the research question facilitates the elaboration of academic contributions capable of being relevant for practice, it does not constitute a necessary and/or sufficient condition. A theoretical contribution which has been originally developed without practical grounding can sometimes offer interesting insights for practice, as the substantial impact of the Hackman and Oldham (1980) work design model makes clear.

As we noted above, this paper stops short of stating that the results of the joint research project will always have positive, instrumental (Beyer, 1997) impacts on practice, though the example we have followed provides an illustration of such positive impacts occurring. The simple combining of local and scholarly knowledge will not always impact practice in a direct manner. However, the use of the design sciences, particularly as illustrated by work being done with the National Health Service in the UK (e.g. Bate and Robert, 2007; Bevan et al., 2007; Plsek et al., 2007) may be useful in this regard. This work relies in involving practitioners in evidence-based design approaches that may go through several iterations in order to develop particular designs that help to flesh out more abstract recommendations for action.

Conclusion

In this paper we have questioned some of the underlying reasons for persisting gaps between practitioner concerns and research published in top tier academic Journals. We have also investigated why certain scholars consider these gaps as unbridgeable even though multiple types of collaborative research have been developed over the course of the past 50

years precisely with the goal of fostering the elaboration of scholarly knowledge relevant for management practice.

We identified two major reasons. One is the lack of explicitness of the epistemological frameworks in which **both** the argument of the unbridgeability of the science and practice gap **and** most of the collaborative methods have been developed. To avoid perpetuating this source of problem, in this paper we have been vigilant to specify the epistemological and scientific framework of our contribution. This framework combines the epistemological framework of the teleological constructivist epistemological paradigm (Glasersfeld, 2001, 2005; Le Moigne, 1995, 2001) with viewing management science as a science of the artificial (Simon, 1996; Mohrman, 2007; Avenier, In Press/a).

The second reason comes from the way the research question is defined. We have suggested a three-step process for designing the research question, which involves both academics and practitioners in complementary ways. The first step aims at jointly identifying a vexing practical concern of potential academic interest. The second step consists of searching via thorough literature survey available academic evidence related to this practical concern. In the third and final step practitioners examine whether such academic evidence permits them to deal satisfactorily with the practical concern considered. If not, this joint confrontation of academic evidence and practical concern reveals a theoretical gap, from which the research question is then derived. Our approach underscores the difference and complementarity of academic researchers and practitioners' roles in the way we view collaborative research.

The actualization of this potential relies on the desire of individuals having different goals and competences becoming involved in a shared project, that of developing academic knowledge relevant for coping with some important practical problem. This supposes that these academic researchers and practitioners perceive the potential, mutual interest of

collaborating on an intellectually-demanding and time-consuming risky project. Hence, this approach may interest academic researchers who are fundamentally interested in studying real-world problems and bestow value to the experience and knowledge that practitioners occupying various functions develop in their practice. Such a method is probably more fertile when implemented with practitioners used to behaving as reflective practitioners (Schön, 1983) and who, like BETA's CEO, consider it at least potentially valuable to perform this reflective work in interaction with an academic researcher. This illustrative example also shows that the dissemination of knowledge developed in such research projects offers opportunities for academics to meet such practitioners. It also illustrates the feasibility of, and a means of, a relational scholarship of integration (Bartunek, 2007).

Finally, by transgressing the still wide-spread, implicit belief that science needs to be anchored in a positivist or (critical) realist epistemological paradigm and follow the model of the sciences of nature, and by entrusting practitioners for the assessment of knowledge's relevance and actionability, this article presents and illustrates conditions that foster the elaboration of scientific knowledge relevant for practice and gives support to the development of evidence-based management. Diverse examples drawn from an ongoing research project illustrate the feasibility of carrying out such projects in a constructivist conception of management science viewed as a science of the artificial. If in this view management science can justify its *raison d'être*, what could possibly be the legitimacy of a management science in which there is an unbridgeable gap between scientific knowledge and knowledge relevant for practice?

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